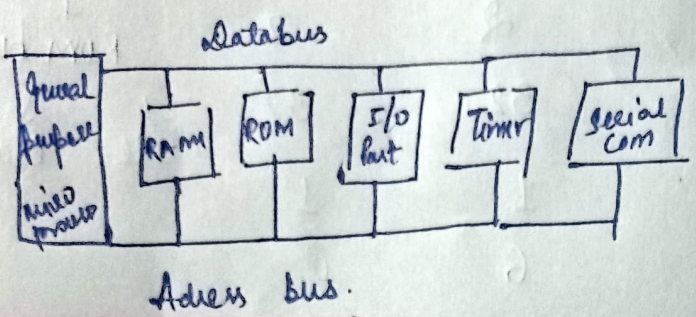
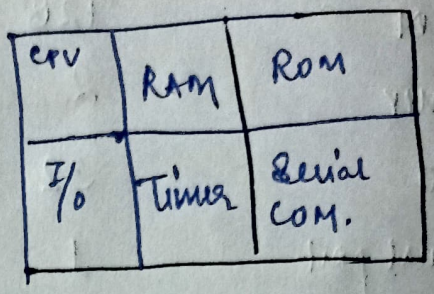
THE 8051 MICROCONTROLLER

- General purpose microprocessor system



- Microcontroller

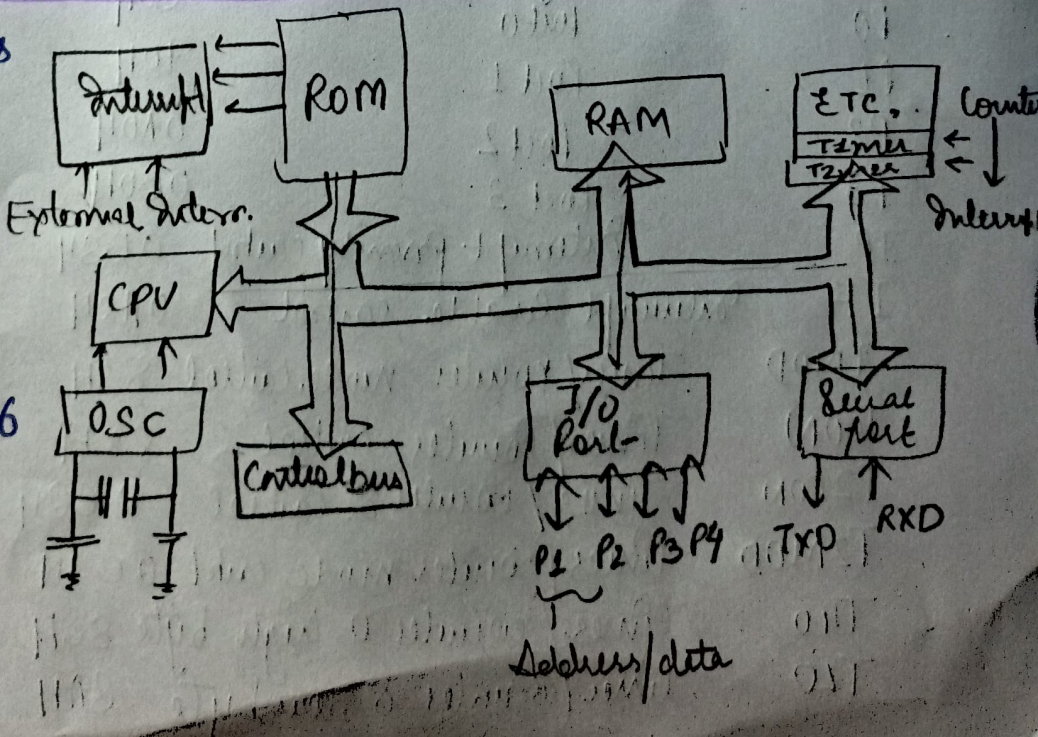


- **Criteria for choosing a Microcontroller**

1. a) Speed: c) Power consumption e) The no. of I/O pin & timer
   b) Packaging d) The amount of RAM & ROM f) Upgrade g) Cost
   d. How easy is to develop product around it.
   - > availability of assembler
   - > debugger
   - > code efficient - C language compiler
   - > emulator
   - > tech support
3. its ready availability now & future, can have more suppliers like 8051 firstly developed by Intel but now Atmel, Philips, AMD, Dallas - semiconductors

OVERVIEW of 8051 MICROCONTROLLER - 8 BIT

- ROM : 4K bytes
  RAM: 128 bytes
  Timer: 2
  I/O : 32
  Serial: 1
  Interrupt source: 6



COMPARISON Between 8051 family number

	8051	8052	8031	8751	AT89C51
ROM	4K	8K	OK	4K(UV-Erase)	4K (Flash Rom + Rom burner → write, erase)
RAM	128	256	128	128	
Timer	2	3	2	2	
I/O	32	32	32	32	
Serial port	1	1	1	1	
Interrupt	6	8	6	6	

Erasable (0000 - 0FFF)

DS89C420/430/... Made a chip which can be programmed via serial COM port of an IBM PC. (on chip loader) (0000 - 3FFF)

INSIDE 8051 REGISTER

- CPU consists of so many register to store information or do operation.

ACC	Accumulator	0E0H	0E0H	General purpose Register R0 - R7
B	B register	0F0H	0F0H	
PSW	Program Status Word	0D0H		
SP	Stack pointer	81H		
DPTR	Data pointer (2 byte)			
DPL	Low byte	82H		
DPH	High byte	83H		
P0	Port 0	80H		
P1	Port 1	90H		
P2	Port 2	0A0H		
P3	Port 3	0B0H		
IP	Interrupt priority control	0B8H		
IE	Interrupt Enable control	0A8H		
TMOD	Timer/counter mode control	89H		
TCON	Timer/counter control	88H		
T2CON	Timer/counter 2 control	0C8H		
T2MOD	Timer/counter mode control	0C9H		
TH0	Timer/counter 0 high byte	8CH		
TL0	Timer/counter 0 low byte	8AH		

TH1	Timer/counter 1 high byte	8DH
TH0	Timer/counter 1 low byte	8BH
TH2	Timer/counter 2 high byte	0CDH
TL2	Timer/counter 2 low byte	0CCH
RCAP2H	T/C 2 capture register high byte	0CBH
RCAP2L	T/C 2 capture register low byte	0CAH
SCON	Serial control	98H
SBUF	Serial data buffer	99H
PCON	Power control	87H